

ABSTRACT

The charge detection device includes a floating diffusion, a reset transistor, a feed through shielding transistor, and a bias tracking voltage reference generator for biasing an output diode.

The reset feed through shielding transistor gate overlaps the reset transistor gate to minimize the reset feed through. The bias tracking voltage reference generator output is adjusted such as to set a predetermined reset time constant for the device and to optimize the detection node performance by minimizing the charge spill back during the reset transistor turning off interval.